

**R****F**

VOL. XXXVI NO. 9

P.O.Box 3454, Tustin, CA 92682

September 1995

Prez Sez ...

By Jim Roberts, N6XTJ

Well it's the first part of September and the ARRL SW convention is in the past. When I first set down to do this I was able to talk about how that was coming up, then the hard drive on my computer died and that is now past history.

It was an interesting weekend and I saw many of you there. I hope others made it to the convention and I am sorry that I didn't see you there. For those that didn't make it there were some interesting talks and some that weren't I'm sure. There were many new toys on display.

Just a quick rundown on what I thought were the high lights in the displays. For those of you that feel a real radio should glow in the dark, it is back! But this time the glow is your computer screen and the whole transceiver is on a board in the computer. Only 100 mW out but the transmitter kit comes with a 50 watt amp. that sits outside the computer. And it costs about the same as the tiny little Icom 706 or Kenwood TS-50S. The knobs and buttons are only pictures on the screen for your mouse to click on. It is a really neat idea and well done from what I saw. I wonder if it will be the same as having the dial in your hand and the buttons under your fingers. Maybe just a little impersonal in the way it felt to me. The times they are a changing, and the change is DSP, Digital Signal Processing. Not just a little box that removes noise by magic, it is the heart of that transceiver in a computer board. NIR was showing DSP filters that have to be heard to be believed. No sound at all then a nice clear voice on side band but a filter that costs as much as a handheld is still hard to jump at. The Icom 706 is so new that they only had a picture to show, but it has 100 watts on HF and 6M and 10 watts on 2M. It is an all mode mobile the size a 2M FM mobile was 10 years ago. The big thing in packet was GPS compatible very small sizes and 9600 baud. Compatibility with the letter was also a selling point for FM mobile rigs. That's just the peaks I saw, other club members there

probably saw things that to them were much more important than these. All of this came with a prominent price tag, but you get what you pay for and you are getting a lot. So many toys, so little money!

One club member who was at his first ARRL convention commented on how much fun he was having and would plan to attend future conferences. Maybe that is because he won a door prize but maybe it was the people he got to see for the first time after talking to them on the air. Plan to attend about this time next year, you'll enjoy it.

As to club business, we still need one more non-member for the nominating committee by the end of this month's club meeting, please contact me if you can help with this most important club function. The club's Christmas party is in the planning stages, contact Jane if you have some ideas. Also start to clean your shack now. The auction is only about a month away. You need to decide now what must go to the auction to make room for the treasures you will be buying at it.

de N6XTJ

## September Program Jon Wetterholm, KD6BPE **Trip to Africa**

## Minutes of General Meeting - August 18, 1995

Meeting called to order by President, Jim, N6XTJ. Board Members present: President, N6XTJ, Treasurer, WA6VKZ, Secretary, KC6ONZ, Public Relations, KC6TAM, Activities, KE6NAH, Membership. WA6VPP, Tech Committee, WA6PFA, Member at Large, KJ6ZH.

Minutes for July meeting were read. Motion to accept minutes as read. Motion accepted.

Treasurer reports there is a little less than last month.

Membership reports 64 paid members. 1 guest present at meeting.

Activities - No new business.

Report from the floor of the Orange County Register still listing the wrong place of our meetings.

Public Relations - Nothing to report.

Tech Committee - Nothing to report.

### OLD BUSINESS

World Radio - They would like us to pay \$60.00 to have our club information listed in their magazine. Motion made, seconded and passed.

Field Day - Bob, KD6BWH was awarded the N6UC award for his part at field day.

### NEW BUSINESS -

Nominating Committee - Committee needs to be formed. Jim would like to see regular club members on the committee.

Good of the Club Award - Contact Board Member.

Christmas Dinner - still looking for a location for Christmas Dinner.

Trailer - Need to get a hold of Skipper, KC6WJJ, about axel.

Meeting adjourned 9:05 pm.

Respectfully submitted,  
Don Hughes, KC6ONZ  
Secretary

### 1995 Board of Directors

President ..... Jim Roberts ... N6XTJ . 310 986-0121  
Vice President . Cindy Hughes . KC6OPI ... 971-3448  
Secretary ..... Don Hughes..... KC6ONZ .. 971-3448  
Treasurer ..... Frank Smith .... WA6VKZ ... 838-3180  
Activities ..... Steve Raemussen KE6NAH .. 630-3305  
Membership .... Bud Barkhurst .. WA6VPP . 774-6361  
Public Relations Jane Breller,KC6TAM. 310 866-2077  
Tech Committee Tom Thomas .. WA6PFA .. 771-2917  
Member At Large Chris Breller..KJ6ZH. 310 866-2077  
Member At Large Bob Bues .... KD6BWH ... 534-2995

### Club Appointments

Club Historian . Bob Evans ..... WB6IXN .... 543-9111  
W6ZE Trustee . Bob Eckweller . AF6C ..... 639-5074  
RF Editor ..... Cindy Hughes .. KC6OPI .... 971-3448

### Dues

Regular Membership .... \$12.00  
Teenage Members ..... 6.00  
Additional Family Members \$5.00 each  
Optional Club Badges .....5.00

Dues for new members are prorated quarterly from January of each year. Family members must reside at the address of a Regular member. One RF is sent per household.

# Net Notes

BY BOB EVANS, WB6IXN

8/2 2m phone net - W6ZE/IXN checks in VFC, EMQ, NG7D, VDP, BPX, AF6C, ZH & TAM, RE, BWH, TWA, QW, & OPI. AF6C 'flies in & flies out'! Wid no 15m net tonite, we surmise Bob is still working on ant. repairs on the low freq. station! BPX will test fer bloodclots in his leg, before impending surgery on the bad knee. Wyatt will try to be at Club Bfast on Sat. VFC takes the grandharmonic swimming each day during the hot WX, and Dennis gets 3 grid squares on 6m yesterday: Oregon CN76, Canada DN49, & Nebraska DN82, plus working Ks on the side. EMQ interrupts homework on formulas long enuf to check in. And NG7D has been bed-ridden fer a couple of days wid severe headache & vomiting. John will get one up on the 'bugs' when he visits the Doc on Fri. And John wrestles wid the intricacies of getting his Micronta printer to work properly on the old Commodore computer! NG7D queries VDP if there might be interest in submitting 6m homebrew ideas to Hambrew mag. Larry says most items can be bought more cheaply than built! VDP sites the TenTec 20/6m transverter in the \$100 price range as an example. VDP will work at RE's QTH this Fri. And to date, Larry has 204 grid squares on 6m! ZH tells NG7D that he built a 6m beam fer abt \$20. TAM is still a little 'under the WX' as Docs work on 'body mysteries'! And Chris garners QSL cards frm BS7H, Scarboro Reef, & A51, Bhutan. Chrs how has 304 countries worked wid 301 confirmed! And what's this! ARRL might do away wid DXCC, replacing it wid a new 'DXCC 2000' award!? RE says the R7 & the dipole work equally well in receiving ARRL bulletins during bad band condx. And Alex reads ARRL bulletins. Help!..Help! Any volunteers to take over collecting ARRL bulletins fer the net & Club meetings!? Contact Alex, W6RE, if interested! IXN forgets to call BWH & tell him the audio is low on Newsline. We all increase audio at our rigs & enjoy another interesting Newsline, especially the OP who sues a major bank! OPs complain becuz FCC has become lax on enforcement issues, but remember guys, we all want a leaner government and we must suffer the consequences, or, DO THE WORK OURSELVES! TWA is re-arranging the QTH! The XYL has decided to re-carpet! And Charles says they are re-vamping the golf course in the SA River bed! QW moves the business to smaller quarters, scaling dwn operations, plus being entertained, and entertaining the XYL's daughter & husband frm Spokane. Wid the Well in, and a gravel road paved to the building site, plans move forward fer Rolf to re-locate to Spokane in the near future! QW gets 7 QSLs on 6m yesterday, 2 frm Mexico today, and grid square DM86 in TX. OPI gets home frm a committee meeting, and Cindy watches the New Orleans situation carefully as hurricane Erin enters the Gulf of Mexico. And FZE finishes summer school in 2 days.

8/9 15m phone net - W6ZE/AF6C checks in NGO, RE, HHC, & IXN. NGO asks HHC how many trout he caught on the recent High Sierra backpacking trip. But Ken 5 or 6 inch trout don't interest Ken! RE, wid an intermittent audio problem, tells OPs that VDP helps him catch up on maintenance chores around the QTH! IXN says comet Hale-Bopp just might be a naked-eye comet come January, 1996! AF6C gets the tower up...Now to borrow RE's climbing belt for more serious antenna work! ZE asks IXN to be sure to announce upcoming Horse/Carriage event at Palos Verdes this weekend, and notify interested OPs to be there at 8:00 am to begin events at 9:00 am.

8/9 2m phone net - W6ZE/IXN checks in BPX, NG7D, PFA, TAM & ZH, VFC, VDP, TWA, RE, AF6C, QW, UCH, BWH, & HHC. XO's XYL phones AF6C & PFA to remind all OPs abt the Horse/Carriage event this weekend. IXN warns OPs abt rattle snake sightings near the foothills! BPX has tests fer bloodclots in his legs in preparation fer knee joint replacement. NG7D recovered frm his intestinal virus, gets another contact on the RS-12, and purchases a 3 amp-hr lead acid gel cell fer the camcorder. PFA announces the OC RACES repeater freq. of 146.895 fer talk-in fer the Horse/Carriage event this weekend. ZH & TAM charge batteries fer the Event! And ZH works fer another DXCC endorsement...Chris has 96 QSLs in hand on 80m! Wid plenty of snow, and rivers still running high near Visalia, HHC & harmonic enjoy cool temps 10,000 ft. above us during a recent backpacking trip in the High Sierra! ZH makes changes at the ends of the 80m sloper to make it more broadband. And VDP says that VFC, acting NC on the So. CA. 6m Club net, checks in 17 out-of-state contacts! (IXN forgot to record the date!) And Larry still has a bias problem in the VHF rig. BWH catches up on news of the Horse/Carriage event this weekend. And Bob airs Newsline, wid clear, crisp audio tonite! TWA, wid new rug now laid in the QTH, has to connect up all the gear once agn. So Charles checked in on the HT tonite, telling OPs that he slipped & fell on the rug, garnering a beautiful black eye frm the incident! RE still looks fer the audio gremlin in the VHF rig. And VDP will try to sell some of Alex' gear at the Swap Meet. RE will discuss R7 purchase wid QW via landline. And RE reminds us that 3 of the LA Communications Dept. supervisors recently killed were Hams: W6KEN, N6BZ, and KA6QIB. QW can't find anything since his recent Business move, but Rolf gets the 'A Number one' most important job completed...He got the coffee pot up and running! Rolf says OPs will enjoy the Home & Garden Show at the Anaheim Convention Center Aug 19-27, and, in passing, QW says VE7s were 'pipelining' into So. CA. on 6m yesterday! UCH 'flies in & flies out'! AF6C & PFA says, "Don't forget the



Horse/Carriage event at Palos Verdes this weekend!"

8/16 15m net - W6ZE/AF6C, operating at HHC's QTH, checks in NGO, HHC, TWA, COJ, RE, & IXN. NGO, enjoying the cool temps, asks AF6C if he plans 'ant. raising' ceremonies this weekend. "Not yet", says Bob, as he plans to take a day off to finish up preparations for the event! COJ, AF6C & HHC talk abt past Club Christmas Party sites, and HHC & Dianne are off for a short vacation to Carmel. RE tells OPs abt the hurricane emergency net operating on 14.325 MHz on the East Coast, and Alex informs OPs of FCC intentions to privatize RFI problems, sending them to community electronics repair shops for resolution. And AF6C experiences 'timing problems' w/ the 240Z. Bob thinks he has a 'retarded' timing light! But after performing sum 'voodoo mechanics', Bob resolves the problem!

8/16 2m net - W6ZE/IXN checks in BPX, NG7D, RE, VFC, QW, HHC, AF6C, VDP, BWH, ZH & TAM, PZF, ESD, & TWA. BPX, enjoying the last 3 days of cool WX, must check w/ a vascular surgeon before he has knee surgery. Wyatt will keep us informed! BWH, w/ traffic for the national net, airs Newsline early for OPs. Movie critic NG7D takes in Kevin Kostner's 'Water World', and was not overly impressed! And John tells us that NOAA will drop its present WX satellite xmissions, which will affect OPs receiving WX maps on their home computers! RE is v. happy w/ 'VDP labors' on the QTH! And Alex tells OPs that the R7 ant. is doing a gud job! WHO WILL VOLUNTEER!??...Alex needs an OP to assume Official Bulletin duties for the Club!! Call Alex at 544-1974! VFC & QW garner a new grid square on 6m; CN74! And Dennis says there were 17 DX check-ins on the 6m net last week! VFC, VDP & ESD will all be going to the DeVry Swap Meet this weekend. QW expresses surprise over NOAA dropping WX satellite xmissions, and Rolf 'works till he drops' trying to get the new shop in order! HHC tells IXN that he was backpacking in the Mineral Springs region of the High Sierra. And keeping one eye on Ken's harmonic, Tony, at a critical point in a computer game, HHC tells us that XO, HHC, ZH & TAM, PFA, WLO, AF6C, & DLA, all participated in the Horse Carriage event near Pacific Palisades last weekend! Nice turnout, OPs! VDP has 210 QSLs in on 6m! And Larry tells us that W5FF has Worked All Grid Squares in North America! And his XYL, K5FF, was the 1st person to work DXCC on 6m! ZH & TAM, w/ the CA. Classic Carriage event behind them, work on 6m QSL card preparation. And TAM bakes brownies for Club meeting Fri. eve.! OPI is off to N. Carolina as Red Cross prepares for hurricane Felix to strike the East Coast! PZF has an enjoyable trip thru Wyoming, Montana, Idaho, and Washington...Now bk to the 'old grind', John! ESD enjoys the cooler WX, even getting out yesterday for a round of

golf! And Bob will try to pick up the Heard Is. DXpedition in Nov.! TWA, w/ rug-laying ceremonies over, is still moving too much equipment bk into the shack! However, TWA does plant sum winter tomatoes. Now we'll see if Charles has tomatoes by Christmas!

8/23 2m phone net - W6ZE/IXN checks in VFC, NG7D, PZF, RE, VDP, QW, BWH, ZH & TAM, TWA, & OPI. VFC & QW says 6m has been dead! So it's off to the gym for morning workouts the past week for Dennis! IXN tells OPs that Hayes Acton, W6NIK, is a Silent Key! NG7D calls earlier for the 15m crew, but nobody is heard! And John asks QW to look up AB5YG for an adr on the computer. PZF is 180 degrees off w/ IXN! John doesn't like the hot, humid, uncomfortable WX! But PZF does enjoy 2 gud days at Disneyland w/ the XYL's sister & niece from Albuquerque! RE, experimenting w/ the R7 ant., gets feedback on 10m! VDP suggests that Alex check for a resonant gnd lead, and, try connecting the rig directly to the feedline minus the ant. tuner! And VDP gets 2 more grid squares confirmed today, bringing his total arnd 210! OH,OH!...Larry just discovers part of his log still on scrap paper! QW visited the Home & Garden show at the Anaheim Conv. Center, & Rolf gets 5 more QSL cards today! Meantime, QW puts sum Opera from PBS on tape. BWH, w/ no NTS tonite, airs a 'loaded w/ info.' Newsline later in the net! OPI gets bk home after 5 days w/ the RC on the East Coast...Seems that Cindy just 'blew' Felix right bk out to sea! TAM spends her time w/ the new pup, Andy, and w/ dog, Charlie, who was in the vet hosp. w/ a virus. ZH garners a QSL from ZK3RW, Tokelaus Is.! W/ 98 QSOs confirmed on 80m, Chris needs 2 for the 5 band DXCC! TWA plants more winter tomatoes! Now come January, we'll check on Charles' tomato production!

8/30 15m phone net - W6ZE/HHC checks in NG7D, NGO, IXN & RE. On this v. warm eve, HHC reminds all OPs of Club Bfast Sat. NG7D said it was nearly 100 deg. at the QTH today! And John asked IXN abt a blackout last nite. IXN says no power outage at the QTH! And IXN tells OPs abt a 4.3 EQ at Ridgecrest this morning. Also HHC & IXN compare notes on Carmel, CA. RE & IXN notes drift in ZE's sigs. And Alex tries to cool the QTH w/ two small window air condxs! NGO beats the heat by cutting the grass early! And Kei, w/ help from a nephew & helper, replaces the water line to the QTH yesterday. And NGO has the plumber in to repair an errant drain! RE wonders how one tells the polarity of sunspots as he reports on a possible beginning of solar cycle #23!

8/30 2m phone net - W6ZE/IXN checks in BPX, ZH & TAM, NG7D, PZF, RE, VFC, W6ARY, VDP, KO6TF, QW, & BWH. ARY 'flies in & flies out'! BPX has a 'toe pressure test' coming up at St. Joes Hosp. to see if he can hve knee

# Test Your Knowledge!

How much do you know about repeaters and packet radio?

By H. Ward Silver, N0AX  
22916 107th Ave SW  
Vashon, WA 98070

## Repeaters

1. What is *kerchunking*?
  - a. dropping a hand-held transceiver into water
  - b. spurious interference that overrides your signal
  - c. glitches in an automatic repeater ID system
  - d. momentary transmissions that activate a repeater
2. What does a *squelch* squelch?
  - a. touchtone pulses
  - b. transmitter output
  - c. receive audio
  - d. mobile flutter
3. Subaudible tones are too \_\_\_\_\_ to be heard in a repeater's output audio.
  - a. quiet
  - b. low in frequency
  - c. quick
  - d. infrequent
4. What is the lowest amateur frequency band on which repeater operation is permitted?
  - a. 10 meters
  - b. 160 meters
  - c. 20 meters
  - d. 2 meters
5. A *crossband* repeater operates on two different \_\_\_\_\_.
  - a. amateur bands
  - b. modes
  - c. FM exciter designs
  - d. portions of the same amateur band
6. Repeaters are allowed on which frequencies in the 2-meter band?
  - a. 144.5 to 145.5 MHz
  - b. 146 to 148 MHz
  - c. both (a) and (b)
  - d. all frequencies

8. From the *user's* perspective, a repeater supports \_\_\_\_\_ operation.

- a. simplex
- b. duplex
- c. backchannel
- d. self-activated

9. Unwanted signals at a repeater input resulting from the mixing of strong local signals are called:

- a. whistlers
- b. intermodulation
- c. birdies
- d. LO injection

10. *Full quieting* implies that *what* is minimized?

- a. multipath interference
- b. ignition noise
- c. receiver noise
- d. hum

## Packet

11. TNC stands for:

- a. Terminal Node Controller
- b. Tucson Networking Club
- c. Terminate Network Communications
- d. Transmit Numeric Constant

12. Which specifies the rate at which a packet signal changes states (shifts tones) while sending data?

- a. checksum
- b. baud
- c. packet length
- d. retry count

13. Relaying digital signals through another station is called:

- a. full-duplex
- b. traffic handling
- c. on-line
- d. digipeating

14. Which of the following protocols are used in packet radio?

- a. AX.25
- b. TCP/IP
- c. Both (a) and (b)



REMEMBER WHAT WE LEARNED IN CLASS LAST WEEK, DESMOND? WE HAVE TO BE CLOSE TO THE MICROPHONE



I WONDER IF I SHOULD SIGN "MARINE MOBILE" OR "AIR MOBILE" ON MY WAY DOWN

16. A host station to which multiple connections are made is called a:

- a. node
- b. home
- c. DTE
- d. QTH

17. 1200-baud digital data transmissions are limited to the amateur frequencies above:

- a. 14 MHz
- b. 28 MHz
- c. 144 MHz
- d. 1.2 GHz

18. Sending data by shifting the frequency of an audio tone is abbreviated:

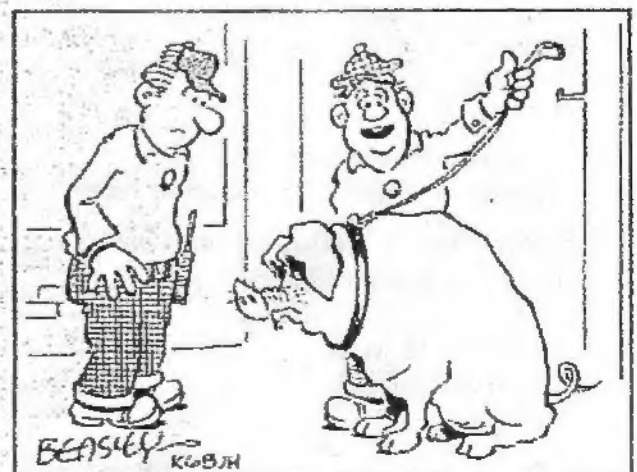
- a. MCW
- b. FEC
- c. AFSK
- d. PSK

19. Establishing contact with another packet station is termed:

- a. connecting
- b. routing
- c. accessing
- d. hosting

20. To send a message to a packet station that is not in contact with you, you must know...

- a. the receiving terminal type
- b. the destination address
- c. the receiving TNC manufacturer
- d. the destination station's receiving frequency



I'M GOING TO GIVE THIS TO MY GIRLFRIEND---SHE SAID IT WOULD BE NICE TO HAVE A HAM AROUND THE HOUSE



surgery. And Wyatt falls on the bad knee, adding insult to injury! And Andy, wid absolute 'No-No' behavior, constantly attacks CQ! Thus, ZH & TAM oust Andy wid a verse of 'Bye-Bye Andy' (sung to the tune of Bye-Bye Blackbird), transferring Andy to a new owner! CQ is once more in charge of the QTH! VFC, VDP & QW cry the '6m Blues' as they bemoan poor band condx! IXN & RE discuss electron rotation, determined by the spectroheliokinematograph, as being a determining factor in assigning polarity to sunspots! And Docs discover a bony growth on Alex' esophagus which results in a CATscan, ultrasound, & X-rays to diagnose the problem! Then RE is off to the ophthalmologist on Oct. 2 fer possible cataract surgery! NG7D hears KO6ZH and gives him a call..No return..QW can't find him in his computer Call Book!..Interesting!! PZF gets the 8m station 'squared away' trnx to help rendered by VFC & LAB! BWH airs a gud 'repeater coordinating' Newslne! And Bob poses an interesting question: Who will be at the Club Blast Sat. wid the Ham Convention in session on the Queen Mary? VDP will go after a Special Event Station, WW2END, frm Tacoma WA, frm aboard the USS Missouri, on all bands! VDP and QW will be 'conventioning' aboard the Queen Mary this weekend! TF now has 35+ DX countries worked as Mel works feverishly to get the BS Jamboree on the Air program ready to go in Oct.! QW plans to fly off to Spokane fer a Home Show Oct. 20 - 22.

RF

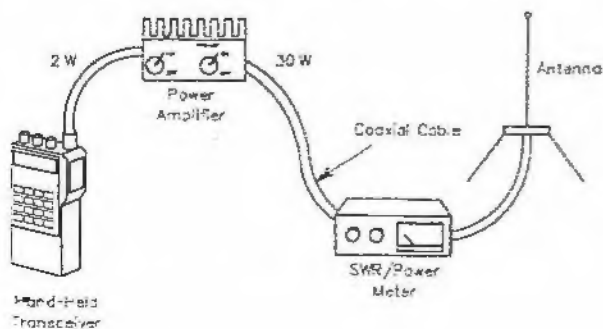
#### Swap Meets:

Monthly: El Cajon ARC Swapmeet: 1st Saturday of each month. Start 6:00 am Talk in 146.520  
Inland Empire ARC Swapmeet: 2nd Saturday of each month. Start 7:00 am Talk in 145.480 -.6, PL - 77.0  
CA Microwave Relay Association Swapmeet: 3rd Saturday each month. Start 7:00 am Talk in 146.175 +.6.  
TRW ARC Swapmeet: Last Saturday each month. Start 7:00 am. Talk in 145.320 -.6, PL - 114.8

**Upcoming Events: ARRL Amateur Radio Awareness Day - September 16, 1995**

**ARRL National Exam Day - September 30, 1995**

**ARRL Simulated Emergency Test - October 21-22, 1995.**



The layout of a typical FM station with an amplifier. Note that the SWR/power meter goes between the output of the amp and the antenna.

## TWO SPEAKERS HELP BEAT HEARING LOSS

◊ As an aging ham, I suffer from partial hearing loss—a condition that seems to be worse at the higher audio frequencies. Increasingly, I had to ask for phonetic repeats on call signs, etc.

Not liking earphones, I tried various external speaker arrangements without success until arriving at the plan described here.

I mounted two 4-inch speakers in cigar-box baffles filled with glass wool, and placed them atop my transceiver, facing me. (The speaker cones must be in phase as determined by cone movement when dc—safely current limited—is applied.) Then I adjusted the speakers' angle so that their axes cross at my position. This arrangement allows me some lateral movement, as long as I'm located on one of the speaker's axes. At dead center, I benefit from both speakers.

This arrangement works well for me, and now I only rarely ask for repeats or phonetics. I would like to hear from others who try this suggestion.—*Tom Freedom, W3HVE, Harrisburg, Pennsylvania*

## FCC SETS FEES FOR VANITY CALL SIGNS

The Federal Communications Commission has adopted a fee for amateur vanity call signs of \$3 per year, to be collected for the entire 10-year term at the time of application.

The beginning date for these fees is September 18, 1995. The fees are the result of a mandate from Congress that the FCC collect fees to recover some of its regulatory costs.

The FCC said that the revenue requirement for amateur vanity call signs is \$840,000, and estimates that it will process 28,000 applications for them.

No start date for applications for vanity call signs has yet been announced, and the necessary FCC Forms 610-V have not yet been released. These fees apply only to vanity call sign applications, not to any other amateur license transaction.

QST

# Club Nets

Band	Mode	Day	Local Time	Freq. MHz	Net Control
15 Meters	SSB	Wednesday	8:00 PM	21.375*	AF6C
2 Meters	FM	Wednesday	8:30 PM	146.550 Simplex	WB6IXN
40 Meters	CW	Thursday	7:30 PM	7.135*	WA6RND

(Listen for W6ZE, Net Control)      \*Plus or Minue QRM

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## General Meeting

September 15  
October 20  
November 17

General Meeting is the 3rd Friday of each month at 7:30 PM.  
American Red Cross  
601 N. Golden Circle Drive, Santa Ana, CA  
Talk in Frequency 146.550 simplex  
Major Cross Streets: Fourth St. & Tustin Ave.

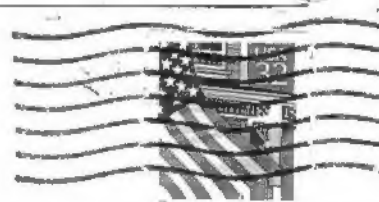
## Board Breakfast

October 7  
November 4  
December 2

Board Meeting is the 1st Saturday of each month at 8:00 AM.  
The Wildflower Restaurant. Members & Visitors are welcome.  
Grand Ave., Santa Ana, CA  
Exit the 5 freeway at 17th Street, go east to Grand Ave. Go  
north on Grand; or exit the 22 freeway at Grand/Glasell. Go  
South to restaurant.

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Orange County Amateur Radio Club, Inc.  
P.O. Box 3454  
Tustin, CA 92681



First Class Mail

Time Dated Material.  
Please Rush!